

Region 1 FY 2015 Invasive Species Control Program Proposal Format

Refuge/complex name: Willapa NWRC

Project title: Willapa Bay *Spartina* Mapping and Eradication

Total amount requested: \$40,000

Project description:

The Willapa National Wildlife Refuge (Willapa NWR) continues to work toward the eradication of the non-native cordgrass, *Spartina alterniflora* (*Spartina*) from Willapa Bay. Treatment areas are within the Willapa Bay watershed on tidally influenced wetlands and tributaries of the bay. Today more than 99% of the *Spartina* has been eliminated, but crews face a daunting job finding the remaining plants. In 2014, along with our partners, Willapa NWR treated over 1,700 plants totaling about 0.7 acres spread out over more than 30,000 acres in the salt marshes surrounding the bay. A combined total of 0.15 acres of *Spartina* was located and treated on South Bay, Long Island, Leadbetter, and East Hills units on Willapa NWR. Willapa NWR would continue to locate and treat *Spartina* infestations within the Willapa Bay Watershed and provide data to develop monitoring methods for verifying complete eradication. During the early season, the project would focus on efforts to locate and treat individual *Spartina* plants and clones. *Spartina* is a prolific seed producer making early detection paramount. Follow-up inspection of previously treated areas, searching for and treatment of new plants would occur during the late season. *Spartina* remains viable and green late into the growing season, while other vegetation turns brown, making it easier to detect.

Distinct project with well-defined objectives (10 points):

Invasive species management actions on Willapa NWR follow an adaptive integrated pest management (IPM) approach. The Willapa Bay *Spartina* control project is remarkable in its scope, scale, and effectiveness as part of a unique watershed-level, multi-partnership *Spartina* eradication plan. The actions of this partnership have resulted in a dramatic reduction in the spread and colonization of the bay by *Spartina*. Over a decade of research and adaptive management has resulted in a proven strategy for prioritizing and optimizing treatments using a biologically sound approach. The contributions of our partners include:

- Washington State Department of Agriculture coordinates data analysis and reporting among all the partners
- Washington State University would provide technical assistance in designing and testing survey and monitoring methods and provide statistical support

This proposal would support a 4 person crew tasked with surveying, GPSing, marking and treating all *Spartina* detected in the designated areas. The crew accesses the areas by airboat or vehicle and walks through thousands of acres of mudflats, intertidal, and saltmarsh habitats. To increase effectiveness, our protocol requires that the entire area be surveyed a minimum of two times each year from June to October. In addition, all the crews, partner agencies included, will use iPhones to collect data. A method used for the first time in 2014 season. The use of iPhones allows us to upload data instantaneously to WSDA and focus our efforts on areas of concern.

Potential for maximum control/Likelihood of success (10 points):

The decade long eradication efforts have resulted in a drastic decline of *Spartina* from covering more than 8,500 acres throughout the 30,000 acre bay. From the beginning, Washington State University, along with partners, has developed and adjusted the protocol aimed at eradicating *Spartina*. The current method calls for six clean passes in a three year period to reduce the required two pass minimum per year. Given our efforts, we have been able to identify areas in the past two years with no *Spartina*. Therefore, if the results remain the same, the potential for complete eradication is favorable with continued treatment and monitoring.

Comment [BF1]: Thank you for adding this to the proposal. This is really reassuring!

Biological benefit to priority species or BIDEH (10 points):

Historically, the southwest Washington coastal region was characterized by waterfowl, shorebirds, wading birds, seabirds, salmonids and other native fish such as green sturgeon and eulachon, shellfish, and a diverse assemblage of other native estuarine-dependent wildlife and plant species. Halting the spread of *Spartina* will recover and maintain natural benthic topology, protect native eelgrass (*Zostera marina*) beds from siltation, maintain healthy, unvegetated intertidal mudflats that serve as important foraging areas for the migratory waterfowl and shorebirds, and protect subtidal habitats vital to native fish for feeding and rearing and for shellfish reproduction.

Sustainability (10 points):

The nature of the bay results in two tide cycles every 24 hours, therefore the spread of *Spartina* is possible while a viable seed source is present. Annual monitoring and treatment is the most effective method of sustaining native wetlands and tributaries of the bay and keeping the spread of *Spartina* contained. Additional funds would be needed to continue these efforts in future years. However, the expected costs are anticipated to decrease as fewer areas require treatment.

Monitoring to document and evaluate project success (10 points):

As areas free of *Spartina* are established, control efforts would be reallocated to the blocks that still contain *Spartina*, allowing more efficient use of crew time and resources. A method of tracking the pace of progress toward eradication divides elimination efforts into active and monitoring stages based on bathymetrically influenced flow patterns in the bay. Once all plants have been eliminated within an area, it would be designated for monitoring. After repeated careful surveys show sufficient time with no regrowth, the area would be designated as eradicated. As individual component sites transition from active to monitoring to eradication status, a portrait of overall progress toward eradication would be assembled using stacked bar charts.

Budget:

The requested funding would staff a survey and treatment crew of four seasonal WG-05 employees for the detection and treatment during the early season. Additional supplemental funds would be needed to maintain the level required for successful monitoring and control of late season. A portion of the budget would be allocated to fuel boat operations.

Additionally, our partners rely on state allocation to sustain the ongoing program. The proposed state budget may result in a reduction of funds, which would require the refuge to expand our area of responsibility to portions of the Willapa NWR that have historically been surveyed and treated by our partners.

Breakdown of Expenditures: Phase 1- Early Season Marking, GPSing, and treatment of *Spartina*: June to Mid-August 2015

Category	Total \$ Spent	% of Total Grant
Equipment/Supplies	\$7,000	18%
WG-05 Salary (4 member crew)	\$33,000	82%
TOTAL	\$40,000	100%

Breakdown of Expenditures (Supplemental Request): Phase 2- Late Season Marking, GPSing, and treatment of *Spartina*: Mid-August to October 2015

Category	Total \$ Spent	% of Total Grant
Equipment/Supplies	\$7,000	18%
WG-05 Salary (4 member crew)	\$33,000	82%
TOTAL	\$40,000	100%

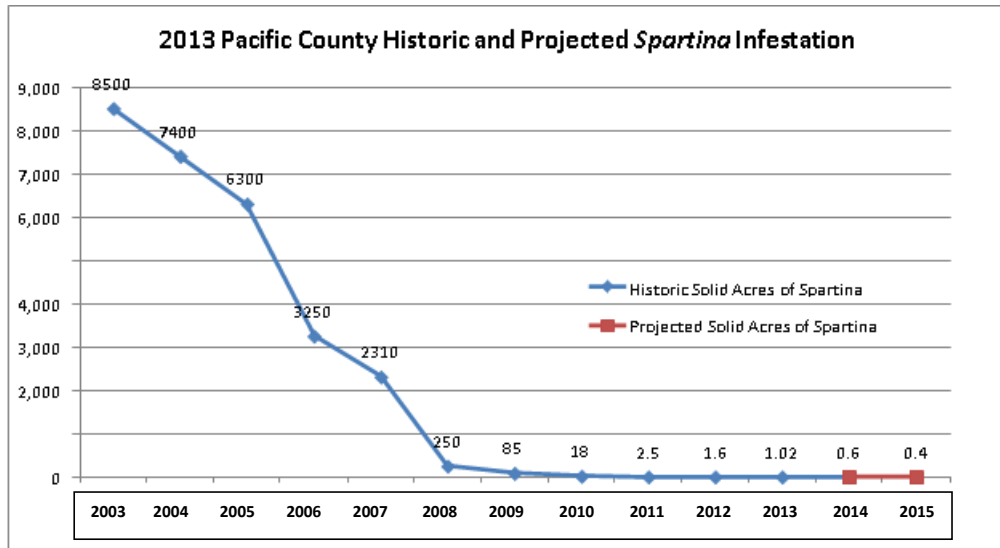


Figure 1: The amount of solid acres of *Spartina* in Willapa Bay by year based on Washington State Department of Agriculture estimates prepared for the 2013 annual report. The blue line represents the historic area of *Spartina* infestation since 2003. The red line represents the projected extent of *Spartina* through 2014, assuming continued funding.